REMARKS

These remarks are in response to the Office Action dated June 20 ,2006. Applicants have canceled claims 1-19, 21-24, 26, 28, 29 and 31-38 without prejudice to Applicants' right to prosecute the canceled subject matter in any divisional, continuation, continuation-in-part or other application. Applicants have amended claims 20, 25 and 30. Support for the amendments can be found throughout the specification and claims as originally filed.

No new matter is believed to have been introduced. Claims 20, 25, 27 and 30 are pending and at issue. Applicants request reconsideration of the pending claims.

Rejections Under 35 U.S.C. §112, first paragraph

Claims 20, 21 and 24-31 stand rejected under 35 U.S.C. §112, first paragraph, as allegedly lacking enablement. Further, claims 20, 21 and 24-31 stand rejected under 35 U.S.C. §112, first paragraph, as allegedly containing subject matter not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. These rejections are moot with regard to cancelled claims 21, 24, 26-29 and 31. While Applicants respectfully traverse this rejection, it is submitted that the amendments to claims 20, 25 and 30 place the pending claims in condition for allowance.

The pending claims encompass nucleic acid sequences that encode polypeptides having peptide deformylase activity. The claims further encompass methods of producing such polypeptides. Independent claim 20 has been amended to recite nucleic acid sequences that encode a polypeptide set forth in SEQ ID NO:8 or SEQ ID NO:9. Applicant submits that the amino acid sequence set forth in SEQ ID NO:8 is novel. Accordingly, any nucleic acid sequence that encodes a polypeptide "comprising" or "consisting of" SEQ ID NO:8 is necessarily novel and fully supported by the specification. Similarly, the amino acid sequence set forth in SEQ ID NO:9 is a truncated form of SEQ ID NO:8. Accordingly, any nucleic acid sequence that encodes a polypeptide "comprising" or "consisting of" SEQ ID NO:9 is necessarily novel and fully supported by the specification.

Amended claim 20 further recites, at part e) and part f), an isolated nucleic acid sequence encoding a polypeptide "comprising an amino acid sequence which is at least 95% identical to the sequence set forth in" SEQ ID NO:9 or SEQ ID NO:8, respectively. Amended claim 20 further recites, at part g) and part h), an isolated nucleic acid sequence encoding a polypeptide " comprising the amino acid sequence of SEQ ID NO:9 (or SEQ ID NO:8) containing up to 10 conservative amino acid substitutions and having peptide deformylase activity."

Applicants note that the amendments to claim 20 were made in order to expedite prosecution of the pending claims and should not be interpreted as a general disclaimer of the territory between the original claim and the amended claim. Accordingly, while it is believed that the amended claims are in condition for allowance, Applicants maintain that the present specification satisfies the requirements of 35 U.S.C. §112, first paragraph, for nucleic acid sequences that encode polypeptides with, e.g., less than 95% sequence identity to SEQ ID NO:9 or SEQ ID NO:8. Applicants intend to pursue such subject matter in claims presented in subsequently filed continuing and/or divisional applications.

Support for the amendments to claim 20 can be found throughout the specification. For example, support for the recitation of "nucleic acid molecule" can be found at paragraph [0065] of the published specification (see US Application Publication No. 2004/0088755). Support for "95%" sequence identity can be found at paragraph [0133] of the published specification. Support for conservative amino acid "substitutions" can be found at paragraph [0139] of the published specification. While the term "conservative" does not specifically appear in the specification, one skilled in the art of molecular biology would clearly recognize that this term is encompassed by the description of polypeptide "variants" in paragraph [0139].

The amended claim encompasses a narrow range of variants including those (1) having at least 95% identity to the amino acid sequence of SEQ ID NO:9 or SEQ ID NO:8; or (2) SEQ ID NO:9 or SEQ ID NO:8 having up to 10 conservative amino acid substitutions. In addition, the claimed genus of nucleic acid molecules is limited to those that encode polypeptides having "peptide deformylase activity." As there is little variation within the claimed genus, a limited number of examples are sufficient to demonstrate possession of the claimed genus of polypeptides. The "Guidelines for Examination of Patent Applications Under the 35 USC §112, Written Description Requirement" (herein after "Guidelines") support claiming in this manner. The Guidelines indicate that patent examiners are required to determine "what each claim, as a whole, covers" (66 Fed. Reg. 1099, at 1105). The Guidelines further indicate that the disclosure of any combination of identifying characteristics that "distinguish the claimed invention from other materials and would lead one of skill in the art to the conclusion that the applicant was in possession of the claimed species" is sufficient to comply with the written description requirement (Id at 1106).

Further, the specification provides enablement for the claims as currently amended. The discussion set forth above with regard to written description is incorporated by reference in the following discussion. The nucleic acid molecules claimed in parts e), f), g) and h) of amended claim 20 encode specific polypeptides limited to 1) particular amino acid sequences (i.e., SEQ ID NO:9 or SEQ ID NO:8) that include minor modifications; and 2) a specific function (i.e., peptide deformylase). Producing a nucleic acid molecule that encodes these polypeptides is a trivial task that any molecular biologist could accomplish using standard recombinant DNA techniques. In addition, Applicants have taught how to identify, clone, analyze, express and assay for the indicated deformylase activity (see e.g., Examples 1-8 beginning at paragraph [0142] of the published specification). Thus, the specification teaches both how to make and how to use the claimed nucleic acid sequences. The enablement requirement is clearly met.

One skilled in the art could make the claimed nucleic acid molecules from the disclosures in the patent coupled with information known in the art without undue experimentation. By providing the appropriate amino acid sequences, along with additional information regarding sequence comparison programs, hybridization conditions, and enzymatic assays, Applicants have presented the skilled artisan with all the information necessary to make the claimed compositions using only routine experimentation. Once made, the nucleic acid molecules can be used as described in the specification.

Applicants wish to point out that the means to make the modifications to SEQ ID NO:9 or SEQ ID NO:8, as encompassed by parts e), f), g) and h) of amended claim 20, are well within the means of the skill artisan without undue experimentation. In support of this, Applicants refer to Bowie et al. (Science 247:1306) which teaches, at page 1306, col.2, lines 12-13, that "proteins are surprisingly tolerant of amino acid substitutions." Bowie et al. cites as evidence a study carried out on the lac repressor. Of approximately 1500 single amino acid substitutions at 142 positions in this protein, about one-half of the substitutions were found to be "phenotypically silent": that is, had no noticeable effect on the activity of the protein (page 1306, col. 2, lines 14-17). Based on Bowie et al.'s teachings, one would predict that nucleic acid molecules encoding polypeptides having even random substitution of residues will result in a majority of the mutants' having full or partial peptide deformylase activity.

In view of the above discussion, it is respectfully submitted that the present specification provides support for subject matter related to claim(s) encompassing nucleic acid molecules of the invention. Accordingly, Applicants request that the rejections under 35 U.S.C. §112, first paragraph, be withdrawn.

Rejections Under 35 U.S.C. §103

Claims 20, 25, 27 and 30 are rejected under 35 U.S.C. §103(a) as being obvious over Braun et al. (*FEBS Lett.* Jan 25, 1993; 316(2): 128-32) ("Braun") in view of Chen et al. (*Biochemistry* Feb 15, 2000; 39(6): 1256-62) ("Chen"). While Applicants respectfully traverse this rejection, it is submitted that the amendments to claims 20, 25 and 30 place the pending claims in condition for allowance.

The cited references alone or in combination fail to teach or suggest: 1) a nucleic acid molecule encoding a polypeptide comprising the amino acid sequence of SEQ ID NO:9; 2) a nucleic acid molecule encoding a polypeptide comprising the amino acid sequence of SEQ ID NO:8; 3) a nucleic acid molecule encoding a polypeptide consisting of the amino acid sequence of SEQ ID NO:9; 4) a nucleic acid molecule encoding a polypeptide consisting of the amino acid sequence of SEQ ID NO:8; 5) a nucleic acid molecule encoding a polypeptide which is at least 95% identical to the amino acid sequence of SEQ ID NO:9 and having peptide deformylase activity; 6) a nucleic acid molecule encoding a polypeptide which is at least 95% identical to the amino acid sequence of SEQ ID NO:8 and having peptide deformylase activity; 7) a nucleic acid molecule encoding a polypeptide comprising the amino acid sequence of SEQ ID NO:9 containing up to 10 conservative amino acid substitutions and having peptide deformylase activity; or 8) a nucleic acid molecule encoding a polypeptide comprising the amino acid sequence of SEQ ID NO:8 containing up to 10 conservative amino acid substitutions and having peptide deformylase activity. Absent any such teaching or suggestion there can be no expectation of success of obtaining a nucleic acid molecule as claimed herein.

In light of the above, Applicants request that this rejection under 35 U.S.C. §103(a) be withdrawn.

CONCLUSION

It is respectfully submitted that all rejections have been overcome by the above amendments and discussion. Thus, Notice of Allowance is respectfully requested.

In the event that there are any questions relating to this Amendment or the application in general, it would be appreciated if the Examiner would contact the undersigned attorney by telephone at (858) 509-7318 so that prosecution of the application may be expedited.

Respectfully submitted,

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